

- 1 1. A method of establishing a quality of service configuration in a network device that
2 participates in a broadband cable network, the method comprising the computer-
3 implemented steps of:
4 receiving a request to obtain a network address from a broadband cable network
5 interface unit over the cable network;
6 receiving a Dynamic Host Configuration Protocol (DHCP) message that includes the
7 network address and a quality of service code value within an option field of
8 the message, wherein the quality of service code value is associated with a
9 quality of service that is applicable to the network interface unit; and
10 establishing, at a cable network device that services the network interface unit, one or
11 more quality of service configuration parameter values that are associated with
12 the quality of service, based on the quality of service provisioning code value.

- 1 2. A method as recited in Claim 1, further comprising the steps of:
2 receiving a DHCP Discover packet from the network interface unit;
3 determining whether the network interface unit conforms to DOCSIS protocol or
4 DVB/DAVIC protocol;
5 inserting an Option 82 field into the DHCP Discover packet, wherein the Option 82
6 field includes first information identifying whether the network interface unit
7 conforms to DOCSIS protocol or DVB/DAVIC protocol.

- 1 3. A method as recited in Claim 1, wherein the step of receiving a request to obtain a
2 network address comprises the steps of:
3 receiving a DHCP Discover packet from the network interface unit;
4 determining whether the network interface unit conforms to DOCSIS protocol or
5 DVB/DAVIC protocol;
6 modifying the DHCP Discover packet by inserting an Option 82 field into the DHCP
7 Discover packet, wherein the Option 82 field includes information identifying
8 whether the network interface unit conforms to DOCSIS protocol or
9 DVB/DAVIC protocol; and

10 sending the modified DHCP Discover packet to a subscriber registration center to
11 obtain a quality of service associated with the network interface unit.

1 4. A method as recited in Claim 1, wherein the step of receiving a DHCP message
2 further comprises the steps of receiving a DHCP message that includes the network
3 address and a quality of service code value within an option field of the message,
4 wherein the quality of service code value is associated with a quality of service that is
5 applicable to the network interface unit, wherein the quality of service code value is
6 determined by retrieving, from a data store, a mapping of a network interface
7 identifier to a quality of service name, based on a network interface identifier that is
8 uniquely associated with the network interface unit.

1 5. A method as recited in Claim 2, wherein the step of receiving a DHCP message
2 further comprises the steps of receiving a DHCP message that includes the network
3 address and a quality of service code value within an option field of the message,
4 wherein the quality of service code value is associated with a quality of service that is
5 applicable to the network interface unit,
6 wherein the quality of service code value is determined by retrieving, from a data
7 store, a mapping of a network interface identifier to a quality of service name,
8 based on a network interface identifier that is uniquely associated with the
9 network interface unit, and
10 wherein retrieving the mapping is carried out by executing a script in response to
11 receiving the DHCP Discover packet.

1 6. A method as recited in Claim 1, wherein receiving a DHCP message that includes the
2 network address and a quality of service code value comprises receiving a DHCP
3 message that includes the quality of service code within a remote identifier sub-option
4 field of an Option 82 field of the message.

1 7. A method as recited in Claim 1, further comprising the steps of receiving a DHCP
2 Offer packet that contains a quality of service code value in Option 82 of the DHCP
3 Offer packet.

1 8. A method as recited in Claim 1, wherein establishing one or more quality of service
2 configuration parameter values that are associated with the quality of service
3 comprises the steps of creating and storing an entry in a quality of service table that
4 references the network interface unit and identifies a quality of service associated with
5 the network interface unit.

1 9. A method as recited in Claim 1, wherein the receiving and establishing steps are
2 carried out by an interactive network adapter.

1 10. A method as recited in Claim 1, wherein the receiving and establishing steps are
2 carried out by a universal broadband router.

1 11. A method as recited in Claim 8, further comprising periodically deleting each entry in
2 the quality of service table that references a network interface unit that is no longer
3 participating in the network.

1 12. A method of establishing a quality of service configuration in a network device that
2 participates in a broadband cable network, the method comprising the computer-
3 implemented steps of:
4 receiving a DHCP Discover request to obtain a network address from a network
5 interface unit over the cable network;
6 modifying the Discover request by inserting an option field that can carry a quality of
7 service code value into the Discover request;
8 forwarding the modified Discover request to a DHCP server for obtaining the network
9 address;

10 receiving a DHCP Offer message that includes the network address and the quality of
11 service code value within an option field of the Offer message, wherein the
12 quality of service code value is associated with a quality of service that is
13 applicable to the network interface unit,
14 wherein the quality of service code value is determined by retrieving a mapping of a
15 unique identifier of the network interface unit to a quality of service name
16 from a data store, and mapping the quality of service name to the quality of
17 service code value; and
18 configuring a cable network device that services the network interface unit with one
19 or more quality of service configuration parameter values that are associated
20 with the quality of service name, based on the quality of service provisioning
21 code value;
22 modifying the Offer message by removing the option field;
23 forwarding the modified Offer message to the network interface unit.

1 13. A computer-readable medium carrying one or more sequences of instructions for
2 establishing a quality of service configuration in a network device that participates in
3 a broadband cable network, which instructions, when executed by one or more
4 processors, cause the one or more processors to carry out the steps of:
5 receiving a request to obtain a network address from a network interface unit over the
6 cable network;
7 receiving a Dynamic Host Configuration Protocol (DHCP) message that includes the
8 network address and a quality of service code value within an option field of
9 the message, wherein the quality of service code value is associated with a
10 quality of service that is applicable to the network interface unit; and
11 establishing, at a cable network device that services the network interface unit, one or
12 more quality of service configuration parameter values that are associated with
13 the quality of service, based on the quality of service provisioning code value.

1 14. A computer-readable medium as recited in Claim 13, further comprising instructions
2 which, when executed by the one or more processors, cause the one or more
3 processors to carry out the steps of:
4 receiving a DHCP Discover packet from the network interface unit;
5 determining whether the network interface unit conforms to DOCSIS protocol or
6 DVB/DAVIC protocol;
7 inserting an Option 82 field into the DHCP Discover packet, wherein the Option 82
8 field includes information identifying whether the network interface unit
9 conforms to DOCSIS protocol or DVB/DAVIC protocol.

1 15. A computer-readable medium as recited in Claim 13, wherein the step of creating and
2 storing first information further comprises instructions which, when executed by the
3 one or more processors, cause the one or more processors to carry out the steps of:
4 receiving a DHCP Discover packet from the network interface unit;
5 determining whether the network interface unit conforms to DOCSIS protocol or
6 DVB/DAVIC protocol;
7 modifying the DHCP Discover packet by inserting an Option 82 field into the DHCP
8 Discover packet, wherein the Option 82 field includes information identifying
9 whether the network interface unit conforms to DOCSIS protocol or
10 DVB/DAVIC protocol; and
11 sending the modified DHCP Discover packet to a subscriber registration center to
12 obtain a quality of service associated with the network interface unit.

1 16. A computer-readable medium as recited in Claim 13, wherein the step of creating and
2 storing second information further comprises instructions which, when executed by
3 the one or more processors, cause the one or more processors to carry out the steps of
4 receiving a DHCP message that includes the network address and a quality of service
5 code value within an option field of the message, wherein the quality of service code
6 value is associated with a quality of service that is applicable to the network interface
7 unit, wherein the quality of service code value is determined by retrieving, from a data
8 store, a mapping of a network interface identifier to a quality of service name, based
9 on a network interface identifier that is uniquely associated with the network interface
10 unit.

1 17. A computer-readable medium as recited in Claim 13, wherein the step of creating and
2 storing second information further comprises instructions which, when executed by
3 the one or more processors, cause the one or more processors to carry out the steps of
4 receiving a DHCP message that includes the network address and a quality of service
5 code value within an option field of the message,
6 wherein the quality of service code value is associated with a quality of service that is
7 applicable to the network interface unit,
8 wherein the quality of service code value is determined by retrieving, from a data
9 store, a mapping of a network interface identifier to a quality of service name,
10 based on a network interface identifier that is uniquely associated with the
11 network interface unit, and
12 wherein retrieving the mapping is carried out by executing a script in response to
13 receiving the DHCP Discover packet.

1 18. A computer-readable medium as recited in Claim 13, wherein the instructions for
2 carrying out the step of receiving a DHCP message that includes the network address
3 and a quality of service code value further comprise instructions for carrying out the
4 steps of receiving a DHCP message that includes the quality of service code within a
5 remote identifier sub-option field of an Option 82 field of the message.

1 19. An apparatus for establishing a quality of service configuration in a network device
2 that participates in a broadband cable network, which instructions, comprising:
3 means for receiving a request to obtain a network address from a network interface
4 unit over the cable network;
5 means for receiving a Dynamic Host Configuration Protocol (DHCP) message that
6 includes the network address and a quality of service code value within an
7 option field of the message, wherein the quality of service code value is
8 associated with a quality of service that is applicable to the network interface
9 unit; and
10 means for establishing, at a cable network device that services the network interface
11 unit, one or more quality of service configuration parameter values that are
12 associated with the quality of service, based on the quality of service
13 provisioning code value.

1 20. An apparatus for establishing a quality of service configuration in a network device
2 that participates in a broadband cable network, which instructions, comprising:
3 a network interface that is coupled to the data network for receiving one or more
4 packet flows therefrom;
5 a processor;
6 one or more stored sequences of instructions which, when executed by the processor,
7 cause the processor to carry out the steps of:
8 receiving a request to obtain a network address from a network interface unit
9 over the cable network;
10 receiving a Dynamic Host Configuration Protocol (DHCP) message that
11 includes the network address and a quality of service code value within
12 an option field of the message, wherein the quality of service code
13 value is associated with a quality of service that is applicable to the
14 network interface unit; and

15 establishing, at a cable network device that services the network interface unit,
16 one or more quality of service configuration parameter values that are
17 associated with the quality of service, based on the quality of service
18 provisioning code value.